General

Guideline Title

Clinical practice guideline for dementia. Part I: diagnosis & evaluation.

Bibliographic Source(s)

Clinical Research Center for Dementia of South Korea. Clinical practice guideline for dementia. Part I: diagnosis & evaluation. Seoul (South Korea): Clinical Research Center for Dementia of South Korea; 2011. 117 p. [430 references]

Guideline Status

This is the current release of the guideline.

Recommendations

Major Recommendations

The ratings of recommendation (A-C) and the evidence classification scheme (I-IV) are defined at the end of the "Major Recommendations" field.

Etiology and Epidemiology of Dementia

1. Medical intervention aimed at early detection and prevention of dementia should be implemented as a 5-year delay in the onset of dementia is known to cut the prevalence by half (Level A).
2. Periodic and continuous medical intervention alert to any changes in the cognitive function and the activities of daily living performance should be implemented in patients with suspected mild cognitive impairment (Level B).
3. Early detection of the risk factors of dementia and subsequent medical intervention is important for prevention of dementia. A thorough control of the vascular risk factors is particularly critical for prevention and management of not only cardiovascular and/or cerebrovascular disease but dementia (Level A).

Diagnosis and Evaluation of Dementia

1. Diagnosis of dementia should be made through a comprehensive assessment that includes but is not limited to the following (Level A).
    A. History taking, physical and neurological examinations
    B. Evaluation of cognitive function and mental state using a standardized neuropsychological examination
    C. Assessment of activities of daily living (ADL)
    D. Brain imaging
    E. Laboratory tests
2. History taking in patients with dementia should obtain sufficient information that includes the following (Level A).

   A. The mode of onset, the pattern of progression, cognitive impairment, and behavioral changes
   B. Behavioral and psychological symptoms of dementia from a mental state examination
   C. Interviews of reliable informants
3. Cognitive assessment should involve a brief cognitive test and a more detailed neuropsychological battery (Level B).
   A. A brief cognitive assessment is aimed at the early evaluation of patients in the screening of dementia and/or history taking.
   B. A more detailed psychological battery is aimed at differentiating a questionable or mild dementia from normal cognitive decline, differentiating among subtypes of dementia, and providing information for treatment of dementia.
   C. Cognitive assessment should be performed with standardized tools and include memory, language, attention and concentration, judgment, calculation, executive functioning, and visuospatial abilities.
4. ADL impairment is an essential part of the diagnostic criteria for dementia and should be included in the diagnostic evaluation (Level A).
   A. Assessment tools based on the patient and/or carer interviews should be used for an objective ADL assessment.
   B. Both physical and instrumental ADLs should be measured.
5. Laboratory tests of dementia should be aimed at assessing medical states that could affect cognitive functioning or become the primary cause of dementia (Level A).
   A. Laboratory tests of dementia should include complete blood count (CBC), biochemical profile (electrolytes, blood glucose, calcium, renal function, and hepatic function), thyroid function, serum vitamin B_{12} and folate levels.
   B. A routine cerebrospinal test or genetic test aimed at the diagnosis of dementia is not recommended.
6. Structural and functional brain imaging should be performed for the diagnosis of dementia (Level A).
   A. As structural brain imaging, computed tomography (CT) or magnetic resonance imaging (MRI) should be routinely used in the early evaluation.
   B. As functional brain imaging, positron emission tomography (PET) or single-photon emission computed tomography (SPECT) can be used together with the structural imaging.

Cognitive Assessment of Dementia

1. Cognitive assessment is essential to diagnosis and evaluation of dementia, and should be performed in all patients with dementia or suspected of dementia (Level A).
2. Comprehensive neuropsychological testing should be considered in all patients with non-severe dementia including prodromal dementia (Level C).
3. Cognitive assessment in patients with dementia should include a global cognitive measure and in addition more detailed testing of individual cognitive domains such as attention, memory, language, visuospatial abilities, executive functions, and instrumental functions (Level C).

Behavioral and Psychological Symptoms of Dementia and Activities of Daily Living

1. Assessment of behavioral and psychological symptoms of dementia is essential for both diagnosis and management, and should be performed in all patients (Level A).
2. Behavioral and psychological symptoms often have somatic co-morbidity or complications. A possible causative co-morbidity or complication should be included in evaluation (Level A).
3. ADL should be assessed in all patients for diagnosis of dementia (Level A).
4. Assessment of ADL should include both the physical and instrumental fields (Level A).

Laboratory Tests of Dementia

1. The following laboratory tests should be performed in the evaluation of patients with dementia: CBC, blood sedimentation rate, electrolytes, calcium, glucose, renal and liver functions, thyroid functions, vitamin B12, folic acid, syphilis, human immunodeficiency virus, and urinalysis (Level B).
2. Cerebrospinal fluid (CSF) analysis should be performed in patients when there is clinical suspicion of certain diseases and in patients with atypical clinical presentations (Level B).
   A. Examination of CSF (with routine cell count, protein, glucose, and protein electrophoresis) is mandatory if inflammatory disease, vasculitis, or demyelination is suspected as a cause of dementia.
   B. CSF total tau, phospho tau, and β-amyloid (Aβ42) should be used as an adjunct in cases of diagnostic doubt.
   C. For the identification of Creutzfeldt-Jacob disease in cases with rapidly progressive dementia, assessment of the 14-3-3 protein should be performed.
3. The genetic testing of dementia should be restricted to the following cases. They must only be undertaken with consent from the patient and caregivers (Level B).
   A. A patient with an appropriate phenotype and a family history of autosomal dominant dementia

B. An asymptomatic adult individual with a clear family history of dementia when there is a known mutation in an affected family member to ensure that a negative result is clinically significant.

4. Routine Apo E genotyping in all patients with dementia is not recommended (Level B).
5. Biopsy should only be undertaken at specialist centers in carefully selected cases for diagnosis of some rare dementias (Level B).

Brain Imaging in Evaluation of Dementia

1. Structural imaging should be used in the evaluation of every patient suspected of dementia (Level A).
2. CT can be used to identify surgically treatable lesions and vascular disease (Level A).
3. MRI (with a protocol including T1, T2 and fluid attenuated inversion recovery [FLAIR] sequences) should be used to increase specificity for diagnosis of dementia (Level A).
4. Of functional imaging, SPECT and PET may be useful in those cases where diagnostic uncertainty remains after clinical and structural imaging work up. They should not be used as the only imaging measure (Level B).

Definitions:

Rating of Recommendations

Level A	Rating (established as useful/predictive or not useful/predictive) requires at least one convincing class I study or at least two consistent, convincing class II studies
Level B	Rating (established as probably useful/predictive or not useful/predictive) requires at least one convincing class II study or overwhelming class III evidence
Level C	Rating (established as possibly useful/predictive or not useful/predictive) requires at least two convincing class III studies

Evidence Classification Scheme

Class I	A prospective study in a broad spectrum of persons with the suspected condition, using a "gold standard" for case definition, where the test is applied in a blinded evaluation, and enabling the assessment of appropriate tests of diagnostic accuracy
Class II	A prospective study of a narrow spectrum of persons with the suspected condition, or a well-designed retrospective study of a broad spectrum of persons with an established condition (by "gold standard") compared to a broad spectrum of controls, where test is applied in a blinded evaluation, and enabling the assessment of appropriate tests of diagnostic accuracy
Class III	Evidence provided by a retrospective study where either persons with the established condition or controls are of a narrow spectrum, and where test is applied in a blinded evaluation
Class IV	Any design where test is not applied in blinded evaluation OR evidence provided by expert opinion alone or in descriptive case series (without controls)

Clinical Algorithm(s)

A clinical algorithm for the diagnostic flow of dementia evaluation is provided in the original guideline document.

Scope

Disease/Condition(s)

Dementia, including:

- Alzheimer disease (AD)
- Vascular dementia (VaD)
- Mild cognitive impairment (MCI)

- Vascular cognitive impairment (VCI)

Guideline Category

Diagnosis

Evaluation

Prevention

Risk Assessment

Clinical Specialty

Family Practice

Geriatrics

Internal Medicine

Neurology

Psychiatry

Intended Users

Physicians

Guideline Objective(s)

- To establish evidence-based, objective and clear clinical standards for dementia
- To improve the clinical decision-making process for clinicians dealing with dementia patients
- To provide scientific and systematic scales to aid in the work of dementia specialists
- To suggest comprehensive and systematic healthcare service tailored to each dementia subtype

Target Population

South Koreans with known or suspected dementia or who are at risk of developing dementia

Interventions and Practices Considered

Risk Assessment/Prevention

1. Prevention through risk factor assessment (e.g., hypertension, stroke, smoking, excessive alcohol consumption, diabetes, depression, and head injury) and treatment
2. Risk assessment of non-modifiable factors for early detection (e.g., age, gender, genetic factors)

Diagnosis/Evaluation

1. History, including informant interviews
2. Physical and neurological examinations
3. Evaluation of cognitive function and mental state (cognitive assessment with standardized tools)
4. Assessment of the physical and instrumental activities of daily living (ADL)
5. Brain imaging (structural brain imaging: computed tomography [CT] or magnetic resonance imaging [MRI]; functional brain imaging: positron

emission tomography [PET] or single-photon emission computed tomography [SPECT]
6. Laboratory tests (complete blood count [CBC], blood sedimentation rate, electrolytes, blood glucose, calcium, renal function, hepatic function, thyroid function, serum vitamin B_{12} and folate levels, syphilis, human immunodeficiency virus, and urinalysis
7. Cerebrospinal fluid (CSF) examination in certain cases (routine CSF is not recommended)
8. Genetic testing in limited cases (routine genetic testing and routine apo E testing are not recommended)
9. Brain biopsy at specialist centers in carefully selected cases
10. Assessment of behavioral and psychological symptoms and somatic co-morbidities

Major Outcomes Considered

- Incidence of dementia
- Rate of comorbidities with dementia
- Age of onset of dementia
- Sensitivity and specificity of diagnostic techniques
- Cognitive function scores

Methodology

Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

Previously published appropriate source guidelines were examined. After searching the internet for published clinical practice guidelines for dementias (primary databases: PubMed [Medline], EMBASE, and PsycINFO; key words: clinical practice guideline and dementia) published during the period of 1997 to 2007; a total of 22 guidelines were retrieved. The data were compiled into a 1,399 page documentation presented in 3 separate booklets (see Table 3 in the original guideline document); volume I: General guidelines for dementia (580 pages); volume II, Diagnosis guidelines for dementia (373 pages); and volume III; Treatment guidelines for dementia (446 pages). For data published after 2007, the developers first searched online using PubMed (Medline), EMBASE, and PsycINFO (key words: dementia or mild cognitive impairment) and came up with 251 systematic reviews, of which 152 review articles were preliminarily selected as additional literature. After review by the steering committee, 85 were finally included.

Number of Source Documents

4 guidelines

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Evidence Classification Scheme

Class I	A prospective study in a broad spectrum of persons with the suspected condition, using a "gold standard" for case definition, where the test is applied in a blinded evaluation, and enabling the assessment of appropriate tests of diagnostic accuracy
Class II	A prospective study of a narrow spectrum of persons with the suspected condition, or a well-designed retrospective study of a

	broad spectrum of persons with an established condition (by "gold standard") compared to a broad spectrum of controls, where test is applied in a blinded evaluation, and enabling the assessment of appropriate tests of diagnostic accuracy
Class III	Evidence provided by a retrospective study where either persons with the established condition or controls are of a narrow spectrum, and where test is applied in a blinded evaluation
Class IV	Any design where test is not applied in blinded evaluation OR evidence provided by expert opinion alone or in descriptive case series (without controls)

Methods Used to Analyze the Evidence

Systematic Review

Description of the Methods Used to Analyze the Evidence

Overall review and comparison of the 22 guidelines presented in the booklets (see the "Description of Methods Used to Collect/Select the Evidence" field) led to determination of the 4 selected guidelines for adaptation to the Clinical Practice Guideline (CPG) for Dementia. Selection was based on the Korean Guideline Instrument for Evaluation (K-GINE). The developers adopted the AGREE (Appraisal of Guidelines for Research & Evaluation, the AGREE Collaboration) format, as recommended by the K-GINE (see Table 4 in the original guideline document).

Selection criteria included currency, content substantiality, consistency through evidence, interpretations, and recommendations, and regional characteristics. Along with quality appraisal of the guidelines, the developers also reviewed whether the retrieved guidelines were suitable for adaptation in view of the local healthcare environment. The process led to the selection of the 4 most prestigious and authoritative clinical practice guidelines for dementia (see Table 5 in the original guideline document).

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

Development of Clinical Practice Guideline for Dementia Through Adaptation

The Clinical Research Center for Dementia of South Korea (CREDOS) formed a development group that worked from May 2007 to August 2009 to devise a locally customized Clinical Practice Guideline (CPG) for Dementia. The group agreed to accept adaptation as the core developmental method. Because Korea has no previously available domestic guideline for dementia, adaptation that modifies previously published acknowledged foreign guidelines can be an efficient alternative to de novo development of a new guideline. The ADAPTE Collaboration-suggested methodology for adaptation was used. In accordance with the Manual for Guideline Adaptation, development of a CPG for Dementia followed a step-wise approach: Set-up, Adaptation, and Finalization phase (see Table 1 in the original guideline document).

Set-up Phase

In the set-up phase, a guideline development group was formed and trained. An overall developmental strategy is also determined during this phase. The CPG for Dementia development group consisted of psychiatric and neurological specialists as well as preventionists, search experts, and methodology experts.

For training, two workshops were held with guest speakers who had extensive experience in guideline development. They provided systematic insights into the strategies for guideline development, dissemination, and implementation. Participants also reviewed and discussed a number of different guideline developmental methodologies including de novo, translation and adaptation development. After a series of monthly meetings, the group decided to adopt an adaptation strategy (see Table 2 in the original guideline document).

Adaptation Phase

The full adaptation process begins in earnest in this phase. The developers mainly used a methodology suggested by the ADAPTE Collaboration.

Key questions needed to be addressed for adaptation were formulated based on the contents of the selected guidelines (see Table 6 in the original

guideline document). The questions were converted to proper problem definitions using the PICO method (P: patient, I: Intervention, C: Comparison, O: outcome), which formed the outlines of the new guideline.

At the end of each chapter, recommendations were suggested with supporting evidence stratified as Level A, B, or C (see the "Rating Scheme for the Strength of the Recommendations" field). For references, the 4 source guidelines and their original references mentioned were all quoted, conforming to the general paper writing principle. Efforts were made to include as much local dementia data as possible in an attempt to avoid a uniform acceptance or simple translation of foreign guidelines and to devise a practical guideline that best meets the local healthcare needs.

Rating Scheme for the Strength of the Recommendations

Rating of Recommendations

Level A	Rating (established as useful/predictive or not useful/predictive) requires at least one convincing class I study or at least two consistent, convincing class II studies
Level B	Rating (established as probably useful/predictive or not useful/predictive) requires at least one convincing class II study or overwhelming class III evidence
Level C	Rating (established as possibly useful/predictive or not useful/predictive) requires at least two convincing class III studies

Cost Analysis

The guideline developers reviewed published cost analyses.

Method of Guideline Validation

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

The final step of guideline development was to perform an external evaluation of a completed guideline and obtain endorsement from involved stakeholders. The preliminary Clinical Practice Guideline (CPG) for Dementia was sent to 33 clinical research centers for dementia nationwide for internal assessment before external evaluation. Based on the input, the development group made necessary modifications, and the revised version went through a public hearing jointly organized by National Clinical Research Coordination Center (NCRC) established by the Korean Centers for Disease Control. All dementia-related academic societies including the Korean Neuropsychiatric Association, the Korean Neurological Association, the Korean Association for Geriatric Psychiatry, and the Korean Dementia Association participated in this hearing. Their confirmation further improved the objectiveness of the CPG for Dementia, and the final version became available after internal review of input from the hearing and making necessary modifications. The procedural excellence, which guaranteed a broad participation and consensus by all members of the dementia related societies, led to the generation of a quality guideline with a wide practical value.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for each recommendation (see the "Major Recommendations" field).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

- Appropriate diagnosis and evaluation of dementia
- Effective risk assessment for the development of dementia

Potential Harms

Not stated

Contraindications

Contraindications

Magnetic resonance imaging (MRI) is contraindicated in patients with implanted cardiac pacemakers or metallic implants in the brain.

Qualifying Statements

Qualifying Statements

- Any information in Clinical Practice Guideline (CPG) for Dementia whose evidence is weak or controversial should be supplemented with further evidence. If necessary, such evidence should come from clinical trials.
- Since CPG for Dementia sourced foreign dementia guidelines published before 2007 for adaptation, modification might be needed to keep it up to date with relevant guidelines published thereafter.
- A clinical practice guideline is aimed at improving physician's decision-making in the general clinical setting. The CPG for Dementia, developed through the ADAPTE method, is the first guideline in Korea accredited by relevant stakeholders. However it is not intended to uniformly define diverse dementia-related clinical situations or to limit any clinical practice involved in dementia care. Indeed, the role of CPG for dementia is to provide useful information, not absolute standards, for care of patients with dementia. It should never be used to limit the clinical practice for the care of patients with dementia by healthcare professionals, nor should it be used for judgment for adequacy of specific clinical practice related to the care of dementia by the Health Insurance & Review Assessment Service. It should also not serve as a basis for legal judgment of any specific clinical practice related to dementia, since in the actual clinical setting, the experience and judgment of a physician often outweigh a standardized guideline.

Implementation of the Guideline

Description of Implementation Strategy

It is important to make sure that the new guideline is used in as many hospitals as possible. To this end, the guideline has been made accessible online at the web page of Clinical Research Center for Dementia of South Korea (CREDOS) (http://www.crcd.or.kr) and NCRC (http://ncrc.cdc.go.kr). It was also published in the Journal of the Korean Medical Association (KMA) (J Korean Med Assoc 2011; 54) in the form of a review article and also was made available on the web page of KMA (http://www.jkma.org). With advancements in communication technology, the abbreviated form of Clinical Practice Guideline (CPG) for Dementia can be available as the smart phone application or E-book linked in the web page of KMA (http://jkma.org/src/SM/jkma-54-861-s002.pdf). CPG for Dementia will also be made into booklets and CDs and distributed to public health centers and their branches nationwide. Symposiums on CPG for Dementia utilization are planned for community sentinel hospitals. True to any clinical practice guidelines, underutilization greatly damages the rationale for the existence of a guideline.

Implementation Tools

Clinical Algorithm

Foreign Language Translations

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Living with Illness

Staying Healthy

IOM Domain

Effectiveness

Identifying Information and Availability

Bibliographic Source(s)

Clinical Research Center for Dementia of South Korea. Clinical practice guideline for dementia. Part I: diagnosis & evaluation. Seoul (South Korea): Clinical Research Center for Dementia of South Korea; 2011. 117 p. [430 references]

Adaptation

The guideline was adapted from the following guidelines:

- National Collaborating Centre for Mental Health. Dementia: The NICE–SCIE Guideline on supporting people with dementia and their carers in health & social care. London: British Psychological Society & Gaskell, 2007.
- Waldemar G, Dubois B, Emre M, Georges J, McKeith IG, Rossor M, Scheltens P, Tariska P, Winblad B; EFNS. Recommendations for the diagnosis and management of Alzheimer's disease and other disorders associated with dementia: EFNS guideline. Eur J Neurol 2007;14:e1-26.
- Report of the Quality Standards Subcommittee of the American Academy of Neurology
    - Petersen RC, Stevens JC, Ganguli M, Tangalos EG, Cummings JL, DeKosky ST. Practice parameter: early detection of dementia: mild cognitive impairment (an evidence-based review). Report of the Quality Standards Subcommittee of the American Academy of Neurology. Neurology. 2001;56:1133-1142.
    - Knopman DS, DeKosky ST, Cummings JL, Chui H, Corey-Bloom J, Relkin N, Small GW, Miller B, Stevens JC. Practice parameter: diagnosis of dementia (an evidence-based review). Report of the Quality Standards Subcommittee of the American Academy of Neurology. Neurology. 2001;56:1143-1153.
    - Doody RS, Stevens JC, Beck C, Dubinsky RM, Kaye JA, Gwyther L, Mohs RC, Thal LJ, Whitehouse PJ, DeKosky ST, Cummings JL. Practice parameter: management of dementia (an evidence-based review). Report of the Quality Standards Subcommittee of the American Academy of Neurology. Neurology. 2001;56:1154-1166.
- Scottish Intercollegiate Guidelines Network. Management of patients with dementia: A national clinical guideline. Edinburgh: NHS, 2006.

Date Released

2011

Guideline Developer(s)

Clinical Research Center for Dementia of South Korea - Disease Specific Society

Source(s) of Funding

Clinical Practice Guideline (CPG) for Dementia has been developed by the Clinical Research Center for Dementia of South Korea (CREDOS) with support from the Korean Ministry of Health and Welfare as part of its Healthcare Technology Promotion Project (A050079). Led by Principal Investigator Duk L. Na, MD (Department of Neurology, Sungkyunkwan University, School of Medicine, at Samsung Medical Center Seoul, Korea) CREDOS undertakes 5 subprojects. CPG for Dementia is an outcome of the extensive efforts to develop a clinical practice guideline and education programs tailored to the Koreans.

The English version of the CPG for Dementia-Part I: Diagnosis & Evaluation was partially supported by the Office of Research Planning and Management, clinical practice guideline support National Evidence-based Healthcare Collaborating Agency, Seoul, Republic of Korea.

Guideline Committee

Clinical Practice for Dementia Development Group

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Financial Disclosures/Conflicts of Interest

All members of the steering committee and the working committee who participated in the research for Clinical Practice Guideline for Dementia development have not received any other support except for Korean government support.

Guideline Endorser(s)

Korean Association for Geriatric Psychiatry - Medical Specialty Society

Korean Dementia Association - Disease Specific Society

Korean Neurological Association - Medical Specialty Society

Korean Neuropsychiatric Association - Medical Specialty Society

Guideline Status

This is the current release of the guideline.

Guideline Availability

Electronic copies: Available in Portable Document Format (PDF) English and Korean from the Journal of the Korean Medical Association Web site.

Availability of Companion Documents

None available

Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI Institute on December 16, 2011. The information was verified by the guideline developer on January 16, 2012.

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